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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,596	09/19/2003	John F. Moore	04408-004001	7046
26161	7590	06/22/2005	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			HOUSE, LETORIA G	
			ART UNIT	PAPER NUMBER
			3672	
DATE MAILED: 06/22/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,596

Applicant(s)

MOORE, JOHN F.

Examiner

Letoria House

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 and 28-40 is/are rejected.
- 7) ☒ Claim(s) 27 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05/10/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 01/14/05; 06/25/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claim 9 is rejected under 35 U.S.C. 112, second paragraph as being indefinite. Claim 9 recites the limitation "outer diamond cutter segment" in line 3. There is insufficient antecedent basis for this limitation in the claim.
2. Claims 13, 15, and 23-29 contain the trademark/trade name Bantam. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a coupling design and, accordingly, the identification/description is indefinite. Absent any showing of criticality it is obvious that the coupling disclosed by the applicant may be substituted with other coupling means that are common and well known in the art at the time of the invention, such as a threaded coupling.
3. Claims 34 - 40 are rejected under 35 U.S.C. 112, second paragraph as being indefinite. Claim 34 recites the limitation "marker" in line 21. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 21 is rejected under 35 U.S.C. 102(b) as being anticipated by Fielder (U.S. 6,412,579).

Fielder discloses a drill bit (2) comprising a body (4) having a proximal end (6) and a distal end (8) with a closed face (4), the body (4) defining an axis and comprising a first portion (14) adjacent to the proximal end (6) and a second portion (12) adjacent to the distal end (8) wherein the portions are substantially cylindrical and a first outer diameter of the first portion (14) is greater than a second outer diameter of the second portion (12); a coupling (9) at the proximal end (6), the coupling adapted for connection with a rotary driver; a primary cutting surface (12) substantially located on a portion of the body with a diameter greater than a diameter of the closed face (4). See Figure 2.

5. Claims 21, 30, 33-34, and 37-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Bossler (U.S. 5,158,393).

With regard to claim 21, Bossler discloses a drill bit comprising a body (10) having a proximal end (See Figure 6) and a distal end (See Figure 6) with a closed face (114), the body defining an axis and comprising a first portion (14) adjacent to the proximal end and a second portion (28) adjacent to the distal end wherein the portions are substantially cylindrical and a first outer diameter of the first portion (14) is greater than a second outer diameter of the second portion (28); a coupling (92) at the proximal end, the coupling adapted for connection with a rotary driver; a primary cutting surface

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(112) substantially located on a portion of the body with a diameter greater than a diameter of the closed face. See Figures 6 and 7.

With regard to claim 30, Bossler discloses an apparatus capable of performing the steps of:

locating a drilling machine having a drill bit, constructed in a manner to drill and core two different diameters in a single operation, over a target location; compensating for wear on the drill bit by setting a depth stop (column 6, line 44) to stop travel of the drill bit at the predetermined depth; operating the drilling machine to drill the diamond core bit (Figure 3, item 34, column 5, lines 30-31) into a surface at the target location until the depth stop contacts a surface of the target location, a primary cutting surface (28) forming a portion of the hole defined by the first diameter and a secondary cutting surface (30, 36, 38) forming a portion of the hole defined by the second diameter in one step; and removing the drill bit from the hole. See figure 2 and 3.

With regard to claim 33, the apparatus of Bossler is capable of performing the step of fastening the drilling machine to the surface after locating the drilling machine over the target location and prior to operating the drilling machine.

With regard to claim 34, the apparatus of Bossler is capable of performing the steps of:

locating a drilling machine having a drill bit over a target location; compensating for wear on the drill bit by setting a depth stop (column 6, line 44) to limit travel of the drill bit at a predetermined depth; drilling and coring a hole having two different diameters in a single operation, a primary cutting surface (28) forming a portion of the

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hole defined by a first diameter and a secondary cutting surface (30, 36, 38) forming a portion of the hole defined by a second diameter in one step; removing the diamond core bit (34) from the hole; and installing the marker (120) into the hole (126). See figures 2, 3, 8, and 9, and column 8, lines 36-58.

With regard to claim 37, the apparatus of Bossler is capable of performing the step of fastening the drilling machine to the surface after locating the drilling machine over the target location and prior to operating the drilling machine.

With regard to claim 38, the apparatus as disclosed is capable of performing the step of installing a marker comprising a reflective marker (120) held in place after installation of the marker by sides defining the hole (126). See figures 8,9; column 8, lines 36-58, column 9, lines 4-10.

With regard to claim 39, the apparatus as disclosed is capable of performing the step of installing the marker (120) by pushing the marker into the hole (126).

With regard to claim 40, the apparatus as disclosed is capable of performing the step of installing the marker (120) flush with the surface (124). See figures 8 and 9.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 1- 2, 12, 13-15, 19, 22, 31-32, and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bossler (U.S. 5,158,393) in view of Alsup (U.S. 2,475,812).

With regard to claims 1, 2, 19, and 22, while Bossler teaches the apparatus as applied above with respect to claims 21, 30, 33-34, and 37-40, having a depth stop with a disc shaped outside ring (72) to limit the penetration of the bit, it fails to teach the depth stop adjustably secured to the first portion by a plurality of adjusting screws. Alsup teaches the use of a plurality of adjusting screws (figure 1, item 12), which are substantially parallel to the axis, in a disc shaped depth stop mechanism (Figure 1, item 5) and suggests that the use of such a device allows the drilling depth to be readily adjusted and provides accuracy in drilling. Therefore, based on the motivation of Alsup it would have been obvious to one skilled in the art at the time of the invention to modify the depth stop mechanism of Bossler to include the plurality of adjusting screws of Alsup in order to drill a precise hole by limiting the penetration of the bit.

With regard to claims 12 and 13, Bossler teaches the drill bit as disclosed wherein the coupling is threaded (96) to fit a drilling machine (98). Absent a showing of

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criticality the applicants Bantam type coupling, of claim 3, may be substituted with a threaded type coupling.

With regard to claim 14, Bossler teaches the apparatus as disclosed comprising a pilot drill (28) extending axially from the distal end of the body.

With regard to claim 15, Bossler teaches the apparatus as disclosed comprising a pilot drill (28) tipped by a diamond (column 5, lines 30-31; Figure 3, Figure 7; column 8, lines 15-19) cutter tip.

7. Claims 31-32, and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bossler (U.S. 5,158,393) in view of Miller (U.S. 2,996,061).

While Bossler teaches the apparatus as applied to claims 21, 30, 33-34, and 37-40 above, it does not teach the use of water as a cooling agent. Miller discloses that it is commonly known that in using a core drill having a diamond impregnated matrix at its operative cutting end, best results are obtained when a liquid coolant (usually water) is fed to the interior of the drill shank to the cutting edge. Therefore, based on the motivation of Miller, it would have been obvious to one skilled in the art at the time of the invention to modify Bossler to included the use of water as a cooling agent to increase the operative life of the drill by the effective flushing action and cooling properties when using water as the cooling agent.

With regard to claim 31, the apparatus of the combined references of Bossler and Miller is capable of performing the steps of: connecting a water source to the drilling

machine prior to operating the machine; cooling the cutting surfaces with flow of water; and removing slurry water from the hole after removing the drill bit from the hole.

With regard to claim 32, the apparatus of the combined references of Bossler and Miller is capable of performing the step of passing the flow of water through at least one internal cooling channel extending longitudinally along the bit.

With regard to claim 35, the apparatus of the combined references of Bossler and Miller is capable of performing the steps of: connecting a water source to the drilling machine prior to operating the machine; cooling the cutting surfaces by providing a flow of water thereto; and removing slurry water from the hole after removing the diamond core bit from the hole.

With regard to claim 36, the apparatus of the combined references of Bossler and Miller is capable of performing the step of providing a flow of water through an internal cooling channel extending longitudinally along the bit.

8. Claims 3-10, 23-24, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bossler (U.S. 5,158,393) in view of Alsup (U.S. 2,475,512) in further view of Barron (U.S. 2,978,846).

The combined references of Bossler and Alsup teach the device as applied to claims 1- 2, 12, 13-15, 19, 22, 31-32, and 35-36 above, however the references fail to teach a secondary cutting surface substantially located on a portion of the body with a diameter greater than a diameter of the closed face. Barron discloses a drilling apparatus with a secondary cutting surface substantially located on a portion of the

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body with a diameter greater than a diameter of the closed face. Barron suggests that a secondary cutting portion with a diameter greater than a diameter of the closed face is necessary to cut accurate holes with or without counter boring, in a single pass.

Therefore it would have been obvious to one skilled in the art at the time of the invention to modify the combined reference of Bossler and Alsup to include the secondary cutting surface of Barron in order to shorten operating time by boring holes in a fast and economical manner.

With regard to claim 3, the combined references teach the drill bit further comprising: a primary cutting surface substantially located on the closed face (13), comprising at least one outer cutter segment (14); and a secondary cutting surface (18) substantially located on a portion of the body with a diameter greater than a diameter of the closed face. Barron figure 3.

With regard to claim 4, the combined references teach the apparatus where in the first outer diameter (18) is approximately thirty-three percent greater than the second outer diameter (13). See Barron figure 3, and column 1, line 2.

With regard to claim 5, the combined reference teaches the drill bit wherein the first outer diameter is between about 1.9 and 2.7 inches and the second outer diameter is between about 1.5 and 2.1 inches. See Bossler figure 6, item 110, and column 8, lines 50-53; Barron figure 3, and column 1, line 2.

With regard to claim 6, the combined reference discloses the drill bit comprising an intermediate ring extending radially outward and circumferentially about the second portion to provide centering. See Barron figure 3, item 17.

With regard to claim 7, the combined reference teaches the secondary cutting surface (18) substantially located on the intermediate ring (17). See Barron figure 3 items 17 and 18.

With regard to claim 8, the combined reference discloses a drill bit wherein an outer diameter of the intermediate ring (17) is between about 1.9 and about 2.3 inches. See Barron figure 3, and column 1, line 2.

With regard to claim 9, the combined reference teaches a drill bit wherein the at least one outer diameter cutter segment comprises a plurality of outer diamond cutter segments spaced around a circumference of the closed face. See Bossler, Figure 7, item 112, and column 2 lines 45-46; Barron figure 3, item 14.

With regard to claim 10, the combined reference discloses a drill bit wherein the primary cutting surface further comprises at least one inner diamond cutter segment extending across the closed face. See Bossler, Figure 7, item 116, and column 2 lines 45-46; Barron figure 3, item 14.

With regard to claim 18, the combined reference teaches the drill bit further comprising a stop outer diameter approximately greater than the first outer diameter; and a stop inner diameter slightly greater than the second outer diameter. See Bossler Figures 6, item 110; Figure 8, item 126; column 8 lines 50-53.

With regard to claim 23, the combined references disclose a body having a distal end with a closed face and a proximal end, the body defining an axis and comprising a first portion adjacent to the proximal end, a second portion adjacent to the distal end, and an intermediate ring wherein the portions are substantially cylindrical, an outer

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diameter of the first portion is between 1.9 and about 2.7 inches, an outer diameter of the second portion is between about 1.5 and about 2.1 inches, the intermediate ring extends radially outward circumferentially about the second portion, and a Bantam coupling at the proximal end, the Bantam coupling adapted for connection with a rotary driver, a depth stop adjustably secured to the first portion by a plurality of adjusting screws wherein the adjusting screws are substantially parallel to the axis, the depth stop being adjustably located between the first portion and the distal end circumferentially around the second portion in a manner to limit penetration of the bit;

a primary cutting surface substantially located on the closed face, comprising a plurality of outer diamond cutter segments spaced around a circumference of the closed face and at least one inner diamond cutter segments extending across the closed face, a secondary cutting surface substantially located on the intermediate ring; and a pilot drill extending axially from the distal end of the body wherein the pilot drill is tipped by a cutter tip. The Examiner takes note that the Bantam type coupling may be replaced by any suitable coupling known to those skilled in the art at the time of the invention, such as a threaded coupling, absent applicants showing of criticality.

With regard to claim 24, the combined references disclose a drill bit wherein the depth stop is substantially disk shaped, with a stop outer diameter of about 2.5 inches and a stop inner diameter of about 1.9 inches.

With regard to claims 28 and 29, the combined references disclose a the drill bit wherein the cutting surfaces comprise diamond.

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9. Claims 11, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bossler (U.S. 5,158,393) in view of Alsup (U.S. 2,475,512), in further view of Barron, and in further view of Miller (U.S. 2,996,061).

While the combined reference of Bossler, Alsup, and Barron teach the apparatus as applied to claims 3-10 above, having a cooling passageway (See Bossler Figure 6, item 100), it does not teach the use of water as a cooling agent. Miller discloses that it is commonly known that in using a core drill having a diamond impregnated matrix at its operative cutting end, best results are obtained when a liquid coolant (usually water) is fed to the interior of the drill shank to the cutting edge. Therefore, based on the motivation of Miller, it would have been obvious to one skilled in the art at the time of the invention to modify to combined reference to included the use of water as a cooling agent to increase the operative life of the drill by the effective flushing action and cooling properties when using water as the cooling agent.

With regard to claim 11, the apparatus of the combined references of Bossler, Alsup, Barron, and Miller discloses a drill bit wherein the outer and inner diamond cutter segments are water cooled.

With regard to claim 25, the combined references disclose the drill bit wherein the diamond cutter segments are water cooled.

With regard to claim 26, the combined references disclose the drill bit comprising at least one internal cooling channel extending longitudinally along the bit.

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10. Claims 16-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bossler (U.S. 5,158,393) in view of Alsup (U.S. 2,475,512) in further view of Miller (U.S. 2,996,061).

With regard to claims 16-18, and 20, while the combined reference of Bossler and Alsup teach the apparatus as applied to claims 1-2, 12, 13-15, 19, 22, 31-32, and 35-36 above, with a cooling passageway (See Bossler Figure 6, item 100), it does not teach the use of water as a cooling agent. Miller discloses that it is commonly known that in using a core drill having a diamond impregnated matrix at its operative cutting end, best results are obtained when a liquid coolant (usually water) is fed to the interior of the drill shank to the cutting edge. Therefore, based on the motivation of Miller, it would have been obvious to one skilled in the art at the time of the invention to modify to combined reference to included the use of water as a cooling agent to increase the operative life of the drill by the effective flushing action and cooling properties when using water as the cooling agent.

With regard to claim 16, the combined references of Bossler, Alsup, and Miller disclose a drill bit wherein the diamond cutter segments and tip are water cooled

With regard to claim 17, the combined references disclose an apparatus comprising at least one internal cooling channel extending longitudinally along the bit.

With regard to claim 18, the combined references disclose the apparatus comprising, a stop outer diameter approximately greater than the first outer diameter; and a stop inner diameter slightly greater than the second outer diameter.

With regard to claim 20, the combined references disclose the apparatus wherein the diamond cutter segments are water cooled.

Allowable Subject Matter

11. Claim 27 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Letoria House whose telephone number is (571) 272-8118. The examiner can normally be reached on M-F, 7:00 A.M. - 4:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on (571) 272-6999. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


David Bagnell
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LGH